Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1.9
F76Am

RED ALDER

NAT'L ... LIBRARY
JUN 25 '93

Red alder is the most important hardwood species in the Pacific Northwest. Its range extends from Alaska to southern California. In western Oregon and Washington where it attains its greatest yield and size, red alder grows in pure stands or mixed with native conifers and other hardwoods. The wood is yellowish brown, intermediate in strength properties, and relatively low in shrinkage. Until recent years, the wood was used almost entirely for medium-priced furniture, but now an increasing proportion goes into the production of pulp.

U.S. Department of Agriculture Forest Service
American Woods—FS-215 Revised November 1971

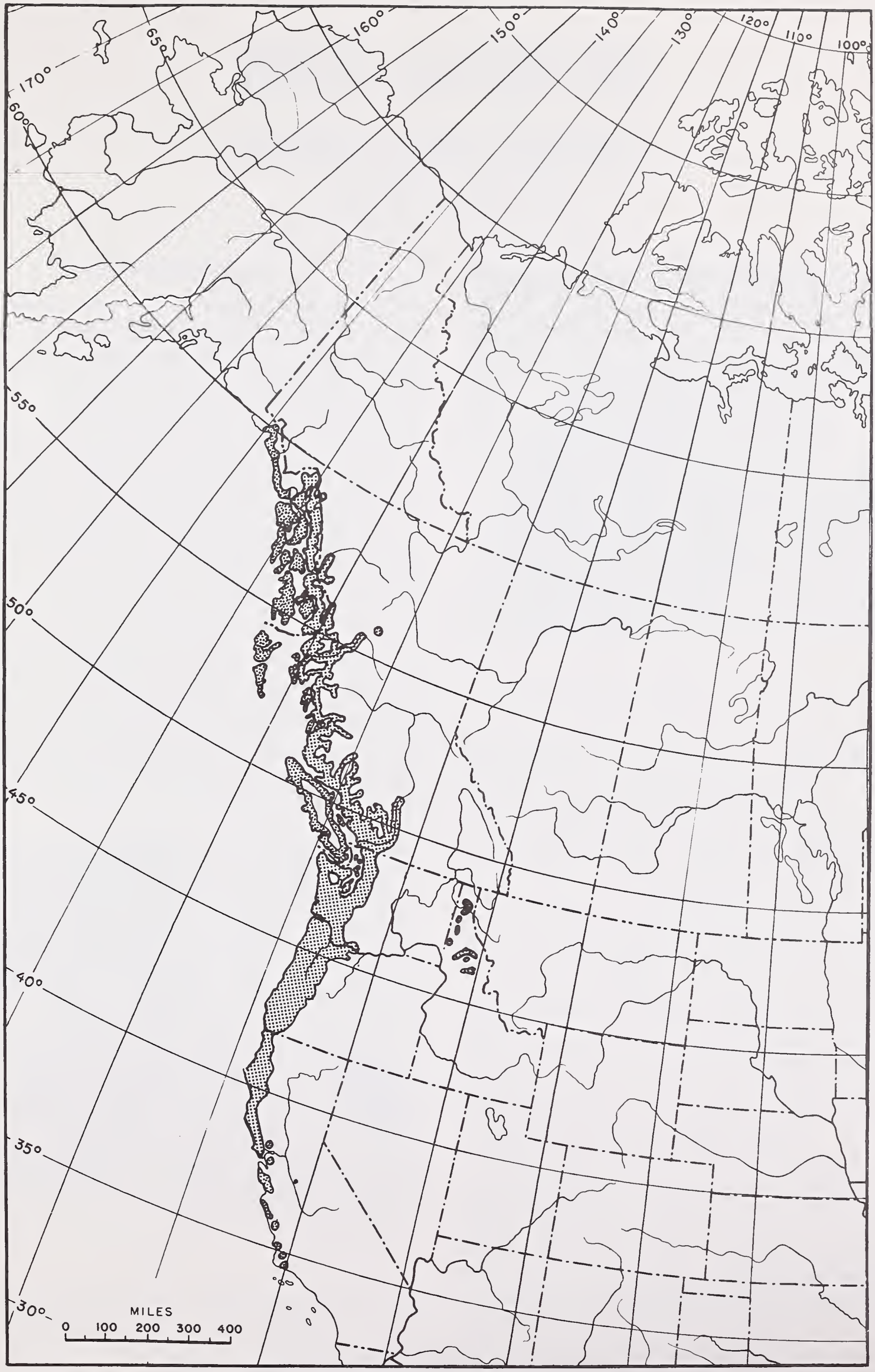


FIGURE 1.—Natural range of red alder, *Alnus rubra.*

RED ALDER

(Alnus rubra Bong.)

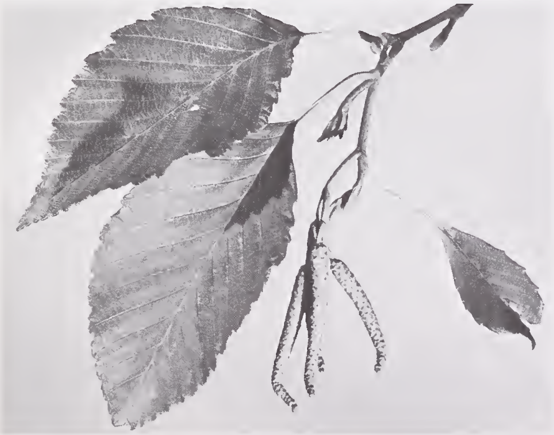
Marlin E. Plank[1]

DISTRIBUTION

The natural range of red alder extends along the Pacific coast from southeastern Alaska to Santa Barbara in southern California (fig. 1). Although red alder is found along streams in northern Idaho, usually it occurs no farther inland than 100 miles and at elevations under 2,500 feet. It grows best on well drained, rich, alluvial soils on borders of streams, on benches, and on moist hillsides. Generally, annual rainfall of less than 25 inches is inadequate to support red alder stands. Along streams and in adjacent bottom land areas where annual precipitation exceeds 40 inches, red alder often forms pure stands. Throughout the greater part of its range, the species occurs as a relatively small-sized tree, in mixture with other trees.

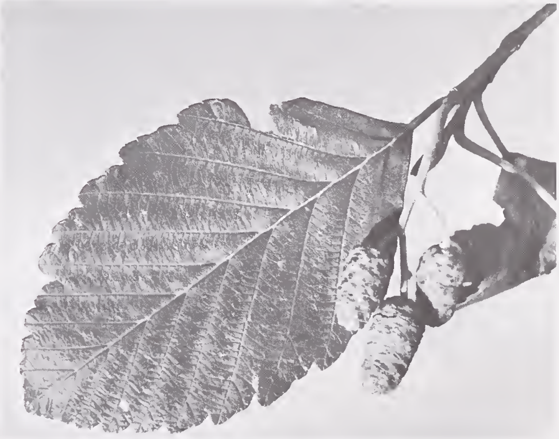
DESCRIPTION AND GROWTH

The flowers of red alder appear in the spring and become larger about the time the leaves appear. When the trees are about 10 years old, seed production begins and continues through maturity. The conelets, ½ to 1 inch long and ⅓ to ½ inch thick, contain 50 to 100 small nutlike seeds (figs. 2, 3). The best seed-bearing age is 25 years. Most trees in a stand will produce cones, and a good seed crop occurs about every fourth year with light crops in intervening years.



F–520709

FIGURE 2.—Red alder: autumn leaves and catkins.



F–520708

FIGURE 3.—Red alder: autumn leaves and cones.

Seed is produced in abundance, averaging 666,000 to the pound. The wind scatters the seed sufficiently to insure a good crop of seedlings on nearby areas, including those from which conifers have been logged or burned. The seedlings on these cutover and burned-over areas grow rapidly. With adequate moisture, first-year shoots will range up to 6 inches in length and, under ideal conditions, have been known to attain a length of 18 inches. Height growth in the years following is even more rapid but, after about 10 years, slows down to 2 to 2½ feet per year. Early in its life, red alder becomes the dominant tree. Slower growing conifers usually form an understory and gradually take over the stand as the red alder dies out.

These temporary red alder stands enrich the impoverished soil of cutover and burned-over areas by adding humus and by the fixation of nitrogen by organisms contained in the root nodules. The species tends to develop epicormic branches or water sprouts when the stand is opened up by heavy thinning or partial cutting. Stump sprouts generally develop only on stumps from young or smaller trees.

---

[1] Forest products technologist, Pacific Northwest Forest and Range Experiment Station, USDA Forest Service.

Cover: A stand of red alder, Cascade Head Experimental Forest. Trees range from 14 to 20 inches in diameter. (F–320965)

Maturity is reached in about 50 years when diameters up to 24 inches and heights of 100 to 120 feet are common, and deterioration becomes evident beyond about 60 years. Where red alder grows in a pure or nearly pure stand, yields up to 6,150 cubic feet or 20,000 to 30,000 board feet per acre, Scribner log rule, are possible at age 50 to 70 years. Volumes of 500 to 3,500 board feet, Scribner, per acre are more common, since red alder often occurs in mixed stands.

White heart rot *(Fomes igniarius)* is the most destructive disease of the live tree and is particularly prevalent on injured trees and in overmature stands. Several types of insects are known to attack the tree; however, none directly cause death. In fact, practically all trees recover from defoliation by caterpillars, and only extremely weak trees die from infestations of bark beetles or borers.

Fire is rarely a serious threat since debris is generally not abundant under red alder stands. This absence of debris, coupled with damp conditions under which the trees grow, minimizes any danger of rampant fire in these stands.

COMMON NAMES

In the regions where red alder grows, the name is commonly shortened to alder. Other names sometimes used are Oregon alder, western alder, and Pacific coast alder.

SUPPLY

The total stand of red alder of sawtimber size in the United States was estimated at 18.8 billion board feet, Scribner log rule, in 1963. Of this volume, 9.5 billion board feet was located in Oregon and 9.1 billion board feet in Washington. California and Alaska together accounted for only about 160 million board feet.

PRODUCTION

Production for red alder lumber was first reported in 1907 as 115,000 board feet. For the next 20 years, it remained relatively small but rapidly increased in the late 1920's. In 1959 production was raised to about 43 million board feet and in 1965 to an estimated 82 million board feet (fig. 4).

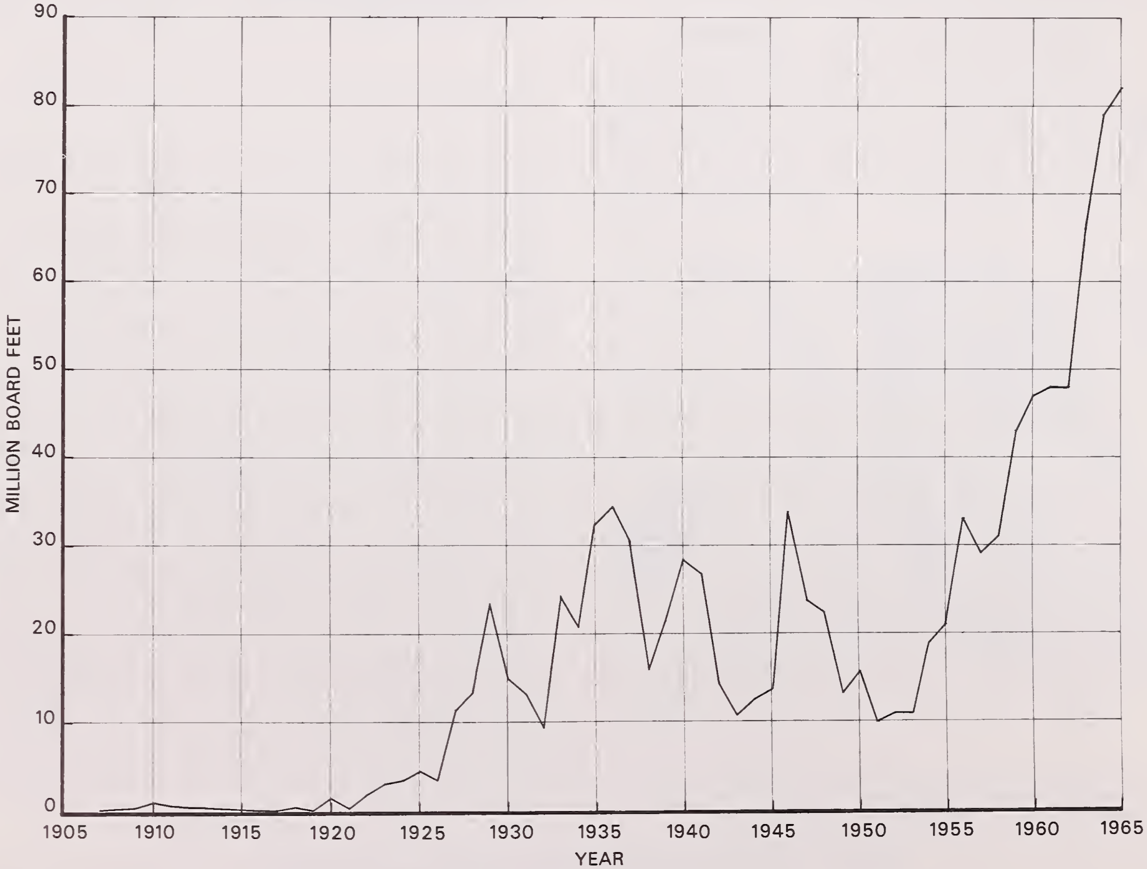


FIGURE 4.—Lumber production of red alder, 1905–65.

In the early 1950's, red alder pulpwood gained attention when an estimated 15,000 cords was produced. Over the last decade, pulpwood production has increased tremendously and in 1964 reached an estimated high of 518,000 cords.

Presently, from 2½ to 3 times as much red alder goes into pulpwood as into lumber, whereas in 1950 only about 40 percent went into pulpwood.

CHARACTERISTICS AND PROPERTIES

Both the sapwood and heartwood of red alder are nearly white when freshly cut, and there is little or no visible distinction between the two. Shortly after being cut, the wood changes to a reddish brown and when dry, may appear to be a light yellowish brown. The wood has a fine uniform grain, is smooth textured, and is easy to work. The annual rings are each made up of a comparatively wide band of springwood and a narrow band of summerwood, the summerwood appearing as fine lines in the radial section.

The wood is moderately light in weight, moderately strong in bending (as in a beam) and compression (as in a post), moderately soft, moderate in stiffness, and moderately low in ability to resist shock. It has little tendency to split when nailed and has moderate nail-holding ability. When properly seasoned, the wood is comparatively stable in all dimensions, and surface checking is not apt to occur in use. Red alder takes and holds stains and paints exceptionally well and glues easily. The wood has low resistance to decay, and in this characteristic is comparable to aspen or white fir. Green lumber is especially vulnerable to organisms producing decay. Unless the green boards are kiln-dried without undue delay or promptly open-piled for air seasoning, they become stained.

PRINCIPAL USES

Pulpwood is the principal use of red alder, and lumber for furniture comes next in importance. Prior to 1950, nearly 99 percent of red alder lumber manufactured was used by the furniture industry, and now about 90 percent is so used. The wood has proved very satisfactory for stained or enameled furniture, for the cores of panels faced with more expensive cabinet woods, such as mahogany and black walnut, for turned and shaped parts of low-priced chairs, and for drawer sides, bottoms, and ends. Small quantities of red alder are also used for fixtures, general millwork, and handles.

REFERENCES

Berntsen, Carl M.
1961. Growth and development of red alder compared with conifers in 30-year-old stands. USDA Forest Serv. Pacific Northwest Forest and Range Exp. Sta. Res. Pap. 38, 20 p.

Betts, H. S.
1945. American woods red alder. (Rev. 1960.) USDA Forest Serv. 4 p.

Bloch, Ivan and Associates.
1964. Western markets for red alder from specified counties in Oregon and Washington. Portland, Oreg. 56 p.

Metcalf, Melvin E.
1965. Hardwood timber resources of the Douglas-fir subregion. USDA Forest Serv. Pacific Northwest Forest and Range Exp. Sta. Resour. Bull. PNW–11, 12 p.

Rymer, K. W.
1951. Red alder in British Columbia. Can. Dep. Resour. and Develop. Forest. Br. Bull. 98, 19 p., illus.

USDA Forest Service.
1965. Silvics of forest trees of the United States. U.S. Dep. Agr., Agr. Handb. 271. 762 p.

Western Wood Products Association.
1966. 1964–65 statistical yearbook. 17 p. Portland, Oreg.

Worthington, Norman P.
1957. Silvical characteristics of red alder. USDA Forest Serv. Pacific Northwest Forest and Range Exp. Sta. Silvical Ser. 1, 15 p.

———Johnson, Floyd A., Staebler, George R., and Lloyd, William J.
1960. Normal yield tables for red alder. USDA Forest Serv. Pacific Northwest Forest and Range Exp. Sta. Res. Pap. 36. 3 p. plus 13 figs. and 13 tables.

———Ruth, Robert H., and Matson, Elmer E.
1962. Red alder—its management and utilization. U.S. Dep. Agr. Misc. Publ. 881, 44 p.

Yoho, James G., Chappelle, Daniel E., and Schweitzer, Dennis L.
1969. The marketing of red alder pulpwood and saw logs. USDA Forest Serv. Pacific Northwest Forest and Range Exp. Sta. Res. Note PNW–96, 7 p.

☆U.S. GOVERNMENT PRINTING OFFICE: 1971 O—437-914